



## INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

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<b>(21) International Application Number:</b> PCT/US95/15418 <b>(22) International Filing Date:</b> 28 November 1995 (28.11.95)  <b>(30) Priority Data:</b> 08/361,246 21 December 1994 (21.12.94) US  <b>(71) Applicant:</b> THE PROCTER & GAMBLE COMPANY [US/US]; One Procter & Gamble Plaza, Cincinnati, OH 45202 (US).  <b>(72) Inventors:</b> DRECHSLER, Lee, Ellen; 3145 Bishop Street, Cincinnati, OH 45220 (US). RABE, Thomas, Elliot; 6-N Tyler Falls Court, Baltimore, MD 21209 (US).  <b>(74) Agents:</b> REED, T., David et al.; The Procter & Gamble Company, 5299 Spring Grove Avenue, Cincinnati, OH 45217 (US).		<b>(81) Designated States:</b> AU, CA, CN, JP, KR, MX, European patent (AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE).  <b>Published</b> <i>With international search report.</i>
<b>(54) Title:</b> LIPSTICK OVERCOAT COMPOSITIONS COMPRISING SILICONE OIL AND SILICA  <b>(57) Abstract</b>  The present invention is a composition which when applied over a lipstick composition prevents transference of the lipstick to objects such as cups, glasses and other table wear coming in contact with the lips. Said composition extends the time between re-applications of said lipstick and adds luster and shine to the lips while providing the user with good skin feel properties.		

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## LIPSTICK OVERCOAT COMPOSITIONS COMPRISING SILICONE OIL AND SILICA

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TECHNICAL FIELD

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The present invention is a composition which when applied over a lipstick composition prevents transference of the lipstick to objects such as cups, glasses and other table wear coming in contact with the lips. This invention, therefore, extends the time between re-applications of said lipstick. Said invention adds luster and shine to the lips while providing the user with good skin feel properties.

BACKGROUND OF THE INVENTION

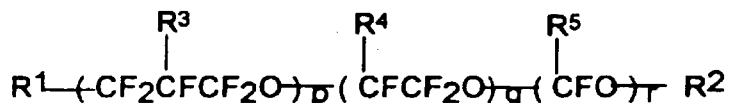
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Lipstick treatment products whose primary purpose is to extend wear, improve the blot transfer resistance and heighten the gloss of said lipstick are well known in the art. These lipstick products, herein referred to overcoats, utilize a variety of polymeric fluids and film forming technologies. For example, acrylic film-formers incorporated in overcoats such as CSI, Incorporated's "Sealed with a Kiss" are delivered in a volatile vehicle, alcohol, which is spread over the lipstick surface. These products have a solid nature and impart a dry, draggy feel to the lip surface. Furthermore, these polymeric overcoats are perceived as sticky during the first few minutes after application when the volatile vehicle commences to evaporate.

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Alternative overcoat products to those described above are disclosed in Japanese Patent Application Number HEI 5[1993]-221829, published August 31, 1993. Said overcoats are reputed to exhibit improved durability of makeup effect, suppression of color transfer, and improved applicability. Said overcoats comprise from 0.2 to 25% of silica powder and/or alumina powder and from 75% to 99.8% of a perfluoropolyether of general formula:



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wherein  $R^1$  through  $R^5$  are independent fluorine atoms, perfluoroalkyl groups, or oxyperfluoroalkyl groups; the value of p, q, and r is at least zero; wherein the perfluoropolyether molecular weight is from about 500 to about 10,000, wherein P, Q and R may be equal, but, not zero. The preferred perfluoropolyether disclosed therein is a commercially available product known as Fomblin HC-04, HC-25, and HC-R available from Montefluosu of Milano, Italy. Upon application these products are typically considered pleasantly smooth and lubricious, however, due to their low surface energy, the fluorinated

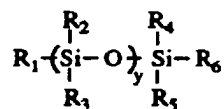
fluid quickly migrates from the lips on contact with saliva, coffee, drinking water, excetra, leaving a gritty, dry layer of silica on the lips. As more and more of the perfluoropolyether fluid migrates from the lips, the above-mentioned negative lip feel dramatically increases. Furthermore, the perfluoropolyether is very expensive, thereby substantially increasing the retail price of the final product.

New products recently marketed in Japan by Kose and Shiseido are compositions comprising silicones and hydrocarbon oils wherein the compositions are in applied over the lips in order to extend the life of the lipstick and provide a sealing effect to protect the lips. These two products have been found to also have skin feel negatives and do not provide significant long-wear benefits.

### SUMMARY OF THE INVENTION

The present invention is a composition comprising from about 75% to about 99% of a non-volatile silicone fluid having a viscosity from about 10 cs to about 1000 cs and from about 1% to about 25% of a thickening agent.

The non-volatile silicone fluid mentioned above corresponds to the formula:



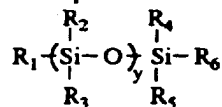
wherein  $R_1$  and  $R_6$  are independently selected from the group consisting of hydroxyl end groups, lower alkyl end groups having carbon chain lengths from about  $C_1$  to about  $C_6$  and mixtures thereof; and  $R_2$  through  $R_5$  are independently selected from the group consisting of lower alkyl groups having carbon chain lengths from about  $C_1$  to about  $C_6$ , fluoroalkyl groups, phenyl groups, aminoalkyl groups and mixtures thereof.

Therefore one objective of the present invention is to provide an overcoat composition to avoid transferring the lipstick onto to objects coming in contact with the lips. Another object of the present invention is to extend the period of time between applications of lipstick. Still another objective is to provide a composition which improves the application and wear feel characteristics sought by consumers as well as improve luster and shine of the lipstick composition applied to the lips. All of these objectives are delivered in a product that is less expensive than comparable products known in the art.

### DETAILED DESCRIPTION OF THE INVENTION

#### A. Non-volatile Silicone Fluids

The non-volatile silicone fluid used in the present invention conforms to the formula:



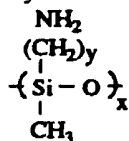
wherein the end groups  $R_1$  and  $R_6$  are independently selected from the group consisting of hydroxyl groups, lower alkyl groups having carbon chain lengths from about  $C_1$  to about  $C_6$  and mixtures thereof, preferably methyl groups. The non-end groups  $R_2$ ,  $R_3$ ,  $R_4$  and  $R_5$  are independently selected from the group consisting of lower alkyl groups having carbon chain lengths from about  $C_1$  to about  $C_6$ , fluoroalkyl groups, phenyl groups, aminoalkyl groups and mixtures thereof. Said non-volatile silicone fluids have a viscosity from about 10 cs to 1,000 cs, preferably 50 cs to about 500 cs, at 25° C and one atmosphere. Said compositions comprise from about 75% to 99%, preferably about 90% to about 99%, and most preferably from about 90% to about 95% of said non-volatile silicone fluid.

Silicone fluids with non-end groups ( $R_2$ ,  $R_3$ ,  $R_4$  and  $R_5$ ) comprising branched and straight chained lower alkyl groups having carbon chain lengths from  $C_1$  to  $C_6$  are known in the art. In the present invention it is preferable that the  $C_1$  to  $C_6$  chain length be as short as possible in order to provide the final product with a relatively non-lipohilic character. Therefore, methyl groups are the most preferred alkyl non-end groups in the present invention. Commercially available non-volatile silicone fluids having such non-end groups include those available from Dow Corning as the 200 Fluids, and those available from General Electric as SF-96 Series.

Silicone fluids with non-end groups comprising fluoroalkyl groups are also useful herein. It is preferable, however, that the fluorine atom is attached to alkyl groups having a  $C_3$  to  $C_8$  chain length wherein the fluorine atom is attached to said alkyl group at a point no closer than third carbon atoms from the silicone/carbon bond. Commercially available non-volatile silicone fluids having such non-end groups include those available from Dow Corning as the 1265 Fluid series, and those available from General Electric as the SF-1153 Series, most preferred is the 1265 Fluid Series, most preferably those of having a viscosity from about 100cs to about 350cs.

Silicone fluids with the non-end groups comprising allyl groups are also useful in the present invention. The allyl groups which are particularly useful in the present invention are phenyl groups. Particularly useful allyl-substituted silicone fluids commercially available are available as the 556 Series from Dow Corning.

The non-end groups mentioned above also include aminoalkyl groups which make up the amino-functional silicones such as methylsilicone and can be structurally represented as:



where x equals the number of repeat units in the polymer chain and y equals the length of the

alkyl group, wherein y is greater than about 2, but, less than about 10; ( $2 < y < 10$ ).

One particularly useful silicone fluid is aminopropyl methylsilicone, available from Dow Corning, Inc.

The preferable non-volatile silicone fluid used in the present invention is selected from the group consisting of dimethicone, phenyl dimethicone, phenyl trimethicone, fluoro-silicone, aminosilicone and mixtures thereof.

#### B. Thickening Agents

In the present invention the above non-volatile silicone fluid is combined with a thickening agent to provide a overcoat composition having a viscosity sufficient to prevent the composition running off the lips immediately after applying. Said thickening agents are used at levels from about 1% to about 25%, preferably about 1% to about 10%, and most preferably from about 5% to about 10% of the composition. Preferred thickening agents are selected from the group consisting of organic/inorganic thickening agents, fumed silica, fumed titania, fumed alumina, and mixtures thereof. Preferred is fumed silica.

Fumed silica is commonly found in cosmetic compositions since it sets up a hydrogen-bonded associative network with itself and with silicone polymer chains present in such compositions. These silicas have a geometry or particle size which when mixed with the non-volatile silica fluid provide a composition having good skin feel characteristics which resist a gritty or abrasive feel to lips upon application or during wear. The fumed silica useful in the present invention is selected from the group consisting of hydrophobic silica, hydrophilic silica and mixtures thereof. The hydrophilic fumed silica most preferred include the Aerosol Series available from Degussa Corporation, as disclosed in the published supplier information sheet, herein incorporated by reference. The hydrophobic fumed silica most preferred are also supplied by Degussa and are the Aerosols that have been treated with organic material, as disclosed in the above-mentioned supplier information sheet. Most preferred hydrophobic fumed silica is Aerosil R974.

#### C. Optional Ingredients

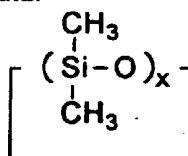
Compositions of the present invention further include optional ingredients which may be added to the composition disclosed above to provide various consumer desirable characteristics to the product. Said optional ingredients include those routinely used in the cosmetic arts to produce a specific cosmetic effect which is deemed desirable. In addition to other ingredients such as preservatives and stabilizers, which maintain the entire physical integrity of the products, said optional ingredients include humectants, occlusives, flavorings, perfumes, colorants and other such routinely used ingredients.

Volatile fluids are particularly useful optional ingredient. They reduce the initial

viscosity of a gelled silicone overcoat, thereby improving the ease of application of the composition over the lipstick. As the volatile fluid escapes from the composition after application, the composition's viscosity increases rapidly, imparting a pleasant, lubricious feel to the lips. Said volatile fluids are selected from the group consisting of volatile hydrocarbons, volatile silicones and mixtures thereof. Compositions of the present invention may comprise from about 1% to 50%, preferably 1% to 25%, and most preferably from 1% to 10% volatile fluids. Preferred volatile hydrocarbons fluids include isododecane, available as for example Permethyl 99A from Permethyl Corporation corresponding to the formula:



Preferred volatile silicone fluids include cyclomethicones having 3,4 and 5 membered ring structures corresponding to the formula:



where X is from about 3 to about 6. Said volatile silicones include 244 Fluid, 344 Fluid and 345 Fluid from Dow Corning Corporation. The volatile silicone is therein gelled, preferably with fumed silica powder.

#### D. Examples

Ingredients	Example Compositions (wt. %)										
	#1	#2	#3	#4	#5	#6	#7	#8	#9	#10	#11
500 centistoke dimethicone fluid [1]	95.0						95.0			93.5	
50 centistoke dimethicone fluid [1]		92.5			82.0	95.0		95.0	92.5		
10 centistoke dimethicone fluid [1]			90.0								85.0
300 centistoke fluorosilicone fluid [2]				95.0							
Hydrophilic fumed silica powder [3]			10.0			4.0		4.9	2.5	2.0	
Hydrophobic fumed silica powder [4]	5.0	7.5		5.0	9.0		4.4		5.0	3.0	10.0
Isododecane [5]					9.0						
Tospearl organosilicon spheres [6]						2.0					5.0
D&C red #6 barium lake [7]							0.1				
Propyl paraben							0.5				
Propylene Carbonate								0.1		1.5	

Total (wt. %)	100	100	100	100	100	100	100	100	100	100	100	100
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[1] Dow Corning 200 Fluid

[2] Dow Corning 1265 Fluid

[3] Aerosil 200 available from Degussa Corp.

[4] Aerosil R974 available from Degussa Corp.

5 [5] Permethyl 99A available from Permethyl Corp.

[6] Tospearl 3120A available from Toshiba Silicones

[7] Chronosphere available from Cardre, Inc.

#### E. Method of Manufacture

10 Combine in a vessel equipped with mixing the silicone fluid and thickening agent. Stir until the mixture is uniform wherein it is then passed through a three-roll mill at least four times to thoroughly blend the components and break up any agglomerated particles. The mixture can then be packaged or stored, preferably in airtight containers.

#### F. Method of Use

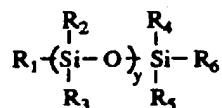
15 The composition of the present invention is applied to the surfaces of the lips covered by at least one layer of lipstick. Said product is spread evenly over said lip surface by any means including by motion of the lips over each other, the user's finger tip, a typical lipstick applicator.



WHAT IS CLAIMED IS:

1. An composition applied to the lips comprising:
  - a) from 75% to 99%, preferably from 90% to 99%, most preferably from 90% to 95% of a non-volatile silicone fluid having a viscosity from 10 cs to 1000 cs, preferably from 50cs to 500 cs; and
  - b) from 1% to 25%, preferably from 1% to 10%, most preferably from 5% to 10% of a fumed silica.

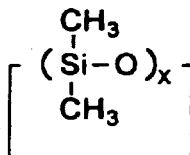
2. The composition according to Claim 1 wherein the non-volatile silicone fluid corresponds to the formula:



wherein R<sub>1</sub> and R<sub>6</sub> are independently selected from the group consisting of hydroxyl end groups, lower alkyl end groups having carbon chain lengths from C<sub>1</sub> to C<sub>6</sub> and mixtures thereof, preferably methyl groups; and R<sub>2</sub> through R<sub>5</sub> are independently selected from the group consisting of lower alkyl groups having carbon chain lengths from C<sub>1</sub> to C<sub>6</sub>, fluoroalkyl groups, phenyl groups, aminoalkyl groups and mixtures thereof; preferably lower alkyl end groups having carbon chain lengths from C<sub>1</sub> to C<sub>6</sub>; most preferably methyl groups.

3. The composition according to Claim 2 wherein the non-volatile silicone fluid is selected from the group consisting of dimethicone, phenyl dimethicone, phenyl trimethicone, fluoro silicone, aminosilicone and mixtures thereof; preferably dimethicone.
4. The composition according to Claim 1 wherein the fumed silica is selected from the group consisting of hydrophobic silica, hydrophilic silica and mixtures thereof.
5. An compositions according to Claim 1 additionally comprising from 1% to 50% volatile fluids selected from the group consisting of volatile hydrocarbons, volatile silicones and mixtures thereof.

6. The compositions according to Claim 5 comprising 1% to 25% of a volatile silicone selected from the group consisting of cyclomethicones having 3,4 and 5 member ring structures corresponding to the formula:



wherein X is from 3 to 6.

7. The compositions according to Claim 6 comprising from 1% to 10% cyclomethicone.
8. A composition comprising:
- from 75% to 99% dimethicone having a viscosity from 10 cs to 1000 cs;
  - from 1% to 25% hydrophobic fumed silica; and
  - from 1% to 10% cyclomethicone.

# INTERNATIONAL SEARCH REPORT

International Application No  
PCT/US 95/15418

A. CLASSIFICATION OF SUBJECT MATTER  
IPC 6 A61K7/02 A61K7/025 A61K7/027 A61K7/48

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)  
IPC 6 A61K

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
P,X	CHEMICAL ABSTRACTS, vol. 123, no. 18, 30 October 1995 Columbus, Ohio, US; abstract no. 237561, IGARASHI, HIROSHI 'Lip preparations for prevention of lip rouge blurring' see abstract & JP,A,07 196 448 (ISEHAN KK, JAPAN)	1-4
Y	PATENT ABSTRACTS OF JAPAN vol. 010 no. 172 (C-354) ,18 June 1986 & JP,A,61 024512 (KOBAYASHI KOOSEE:KK) 3 February 1986, see abstract --- -/--	1-8

☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

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Date of the actual completion of the international search

22 March 1996

Date of mailing of the international search report

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NL - 2280 HV Rijswijk  
Tel. (+ 31-70) 340-2040, Tx. 31 651 epo nl,  
Fax (+ 31-70) 340-3016

Authorized officer

Orviz Diaz, P

## INTERNATIONAL SEARCH REPORT

International Application No

PCT/US 95/15418

## C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	DATABASE WPI Derwent Publications Ltd., London, GB; AN 94-071809 [09] & JP,A,06 024 932 (ISE HAN KK) , 1 February 1994 see abstract ---	1-8
Y	PATENT ABSTRACTS OF JAPAN vol. 017 no. 674 (C-1140) ,10 December 1993 & JP,A,05 221829 (KOSE CORP) 31 August 1993, cited in the application see abstract ---	1-8
Y	EP,A,0 485 012 (THE PROCTER & GAMBLE COMPANY) 13 May 1992 see the whole document ---	1-8
X	DIALOG INFORMATION SERVICES, INC. FILE 158 DIOGENES, AN=02947228, 'Takon skin protectant ointment' see abstract ---	1-4
A	'The U.S. Pharmacopoeia, 23rd edition' 1995 , U.S. PHARMACOPOEIAL CONVENTION, INC , ROCKVILLE, MD Simethicone see page 1409 - page 1410 -----	1-8

### Information on patent family members

PCT/US 95/15418

Form PCT/ISA/210 (patent family annex) (July 1992)